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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,133	08/04/2003	Stefan Vilsmeier	SCHWP0185USA	5770
7590 06/11/2008 RENNER, OTTO, BOISSELLE & SKLAR, LLP Nineteenth Floor 1621 Euclid Avenue Cleveland, OH 44115-2191				
EXAMINER SHAHRESTANI, NASTR				
ART UNIT		PAPER NUMBER		
3737				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/634,133

Applicant(s)

VILSMEIER ET AL.

Examiner

NASIR SHAHRESTANI

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 04 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action is responsive to Applicant's communication filed 03/04/2008.

Claims 1-20 are pending.

Response to Arguments

Applicant's arguments, with respect to Double Patenting have been fully considered and are persuasive. The previous rejection has been withdrawn.

Applicant's arguments filed 03/04/2008 with respect to rejections under 35 USC 103(a) have been fully considered but they are not persuasive. Examiner respectfully disagrees with applicant's assertion that the Cosman and Eggers et al. references (all of record) do not teach the limitations of claims 1-12, 18-20 and further disagrees with applicant's assertion that the Cosman, Eggers et al., and Fabian references (all of record) do not teach the limitations of claims 13-17.

On page 8 of the remarks, applicants have stated (among other statements) ..."Cosman has not been found to make use of implants, let alone disclose determining a current position of the target volume based on the determined position of at least one implant..."

Cosman teaches various forms of a camera system and markers. Specifically Cosman teaches that "...A variety of index markers, either surface mounted, implanted, of geometric area type, skin bands, linear and geometric structures taped to the skin, and so on can be used in as referencing during historic imaging and treatment or diagnostic positioning..." (see column 21 lines 53-58)

As previously stated in the Office Action dated 10/04/2007, Eggers et al. cures the deficiency of Cosman by teaching a method by which a target within a volume may be identified by orientation as well as position. The Eggers et al. reference teaches monitoring of implants and essentially "positionally referencing" (see abstract).

Regarding the depending claims, the Office Action dated 10/04/2007 has clearly indicated how the references can be applied. For example, when the implant is detected, it can be deduced that a "second electromagnetic signal" has been emitted and received, as opposed to the initial EM signal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman (U.S. Patent No.: 6,405,072) in view of Eggers et al. (U.S. 2003/0139787 A1).

Regarding claims 1, 4, 19-20, Cosman teaches a method for detecting a target volume (title) in radiotherapy or radio surgery (fig. 2), said method comprising: referencing at least one implant in the vicinity of the target volume (column 3 lines 29-36); inductively stimulating the at least one implant detecting emission from the at least one inductively stimulated implant and determining a position of the at least one implant based on the detected emission; and determining the current position of the target volume based on the determined

position of the at least one implant (fig. 4; column 11 lines 6-24). Furthermore, Cosman teaches recording an image data based on the position of the at least one implant (column 6 lines 50-59).

Cosman does not specifically teach positionally referencing at least one implant and stimulating said implant.

Eggers et al. teach the wherein a target within a volume may be identified, inter alia, by orientation as well as position (par. 0183)

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified the apparatus and method as taught by Cosman and to have incorporated the teachings of Eggers et al. in order to provide for accurate location of implant sensors within tissue.

Regarding claim 2, Cosman further teaches introducing the at least one implant into the patient in the vicinity of the target volume (column 11 lines 4-5); detecting the position of the implant using an imaging system (column 1 lines 65-67); and referencing an implant relative to inner organs and anatomical structures (column 3 lines 29-32).

Regarding claim 3, Cosman further teaches moving the patient to a therapy device after detecting the implant (column 3 lines 42-46; column 7 lines 1-6); and generating an electromagnetic field in the vicinity of but outside the patient (column 20 lines 28-31), wherein the implant inherently inductively absorbs energy and at least partially re-emits the absorbed energy being in the form of a second EM signal; and detecting said second EM signal outside the patient (column 4 lines 62-67); and determining the position of said

implant relative to measuring points at which said second EM signal is detected and position of said measuring points relative to the therapy device being inherently known by user (fig. 2; fig. 10).

Regarding claim 8, Cosman further teaches activating the therapy device only when the position of the target volume is within a predetermined range about a current target point of the therapy device (column 21 lines 6-28).

Regarding claims 5-6, 9, Cosman further teaches shifting the patient for the target volume to be captured by a therapy beam (fig. 4 element 75), and further teaches adjusting a therapy beam to the position of the target volume (fig. 4 elements 76 & 85).

Regarding claim 7, Cosman further teaches continuously detecting the position of the implant and determining a shift in the position of the target volume caused by breathing based on the detected position (dashed lines 155; column 16 lines 60-67).

Regarding claim 10, Cosman further teaches wherein the measuring points are situated on a rotating portion of a linear accelerator (fig. 11 elements 40A, 40B, 40C).

Regarding claim 11, Cosman further teaches wherein the measuring points are integrated into a treatment couch of the therapy device (fig. 11 elements 32, 30, 31).

Regarding claim 12, Cosman further teaches wherein one or more measuring points are attached to a solid mobile structure as mentioned above, which position relative to the therapy device is tracked three-dimensionally by means of a real-time tracking system (column 7 lines 25-41; column 8 lines 31-41).

Regarding claim 18, Cosman further teaches at least one of the steps is performed in a space adjacent to a treatment position (fig. 7); and a wherein a tracking system additionally tracks the movement and position of external infrared markings (arrows 26), wherein the position and movement of the implant is referenced with respect to the position and movement of the external markings, and wherein positioning, are based only on tracking the external markings (abstract; column 2 lines 21-37).

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman (U.S. Patent No.: 6,405,072) in view of Eggers et al. (U.S. 2003/0139787 A1) and in further view of Fabian (U.S. Patent No.: 5,057,095).

Cosman in view of Eggers et al. teach all the limitations of claim 2 as described above but does not teach wherein at least one implant includes one or more coils. Fabian teaches implants including one or more coils (fig. 2c), which axis are not parallel to each other and are connected to different oscillating circuits. (fig. 5, column 7 lines 1-15). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method as taught by Cosman and to have further included marker implants including coils having varying oscillating circuits in order to provide for detection of surgical implements in an accurate manner and the use of various oscillating circuits or detectors provide for the detection of coils with axes of varying orientation.

Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman (U.S. Patent No.: 6,405,072) Eggers et al. (U.S. 2003/0139787 A1) and in further view of well-known practices in the art.

Cosman in view of Eggers et al. teach all the limitations of claims 1 as described above and further teaches determining the position of the implant relative to measuring points (column 3 lines 42-46; column 7 lines 1-6), being connected to the patient or to a couch (fig. 1; fig. 7); and teaches the measuring points are fitted with reference means and patient being moved to the measuring device using reference (fig. 4) and further teaches a three-dimensional tracking system being an optical infrared camera (camera C2). However, Cosman does not teach the patient being situated in a space or region in which there are few interference fields as possible and in which there are as few metallic parts as possible. Conventional Radiotherapy practices teach the aforementioned limitations and precautions, being well-known in the art and official notice of such is taken. It would have been obvious to one of ordinary skill in the art to have modified the method as taught by Cosman and to have further included the step of situating the patient for Radiotherapy in an area with few interference fields and external metallic parts in order to prevent distortion in transmission signals and to provide for accurate detecting means.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NASIR SHAHRESTANI whose telephone number is (571)270-1031. The examiner can normally be reached on Mon.-Thurs: 7:30-5:00, 2nd Friday: 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian L. Casler/
Supervisory Patent Examiner, Art Unit
3737

/N. S./
Examiner, Art Unit 3737